

# Commercial Unitary Air Conditioners and Heat Pumps

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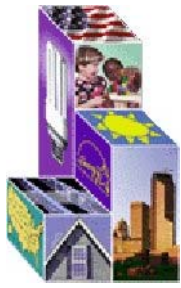
## *Introduction*

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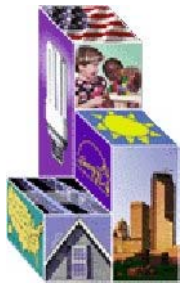
U.S. Department of Energy

U.S. DOE Workshop on Standards  
for Commercial Unitary Air Conditioners  
and Heat Pumps  
October 1, 2001



# Energy Policy & Conservation Act (EPCA) Requirements

- EPCA, Pub. L. 94-163, as amended by the Energy Policy Act of 1992 (EPACT), Pub. L. 102-486, establishes energy efficiency standards for certain commercial heating and air conditioning equipment which includes commercial unitary air conditioners and heat pumps
- The efficiency requirements in the statute correspond to the levels in ASHRAE/IESNA Standard 90.1 as in effect on October 24, 1992
- If the efficiency levels in ASHRAE/IESNA 90.1 are amended, the Secretary of Energy must establish an amended standard for such equipment at the new ASHRAE/IESNA 90.1 minimum level, unless (s)he determines, through a rulemaking supported by clear and convincing evidence, that a more stringent standard is technologically feasible and economically justified and would result in significant additional energy conservation. EPCA section 342 (a)(6)(A), 42 U.S.C. 6313 (a)(6)(A)



# EPCA Requirements (Con't)

- Small and Large Commercial Package Air Conditioning and Heating Equipment are covered products. §342
- EPCA set the initial standards. §342(a)

## Product Category/Product Subcategory

## Efficiency Level

### EPCA

### ASHRAE 90.1-1999

**Small Commercial Packaged Air Conditioning and Heating Equipment/  
\$ 65 kBtu/h and <135 kBtu/h, Air-Cooled, Central AC, HP**

**EER: 8.9**

**EER: 10.3,**

**COP: 3**

**COP: 3.2**

**Large Commercial Packaged Air Conditioning and Heating Equipment/  
\$ 135 kBtu/h and <240 kBtu/h, Air-Cooled, Central AC**

**EER: 8.5**

**EER: 9.7**

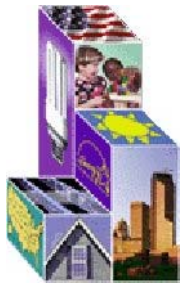
**\$ 135 kBtu/h and <240 kBtu/h, Air-Cooled, Central HP**

**EER: 8.5**

**EER: 9.3,**

**COP: 2.9**

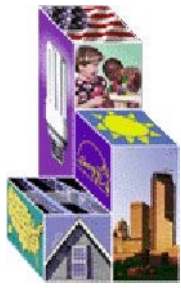
**COP: 3.1**



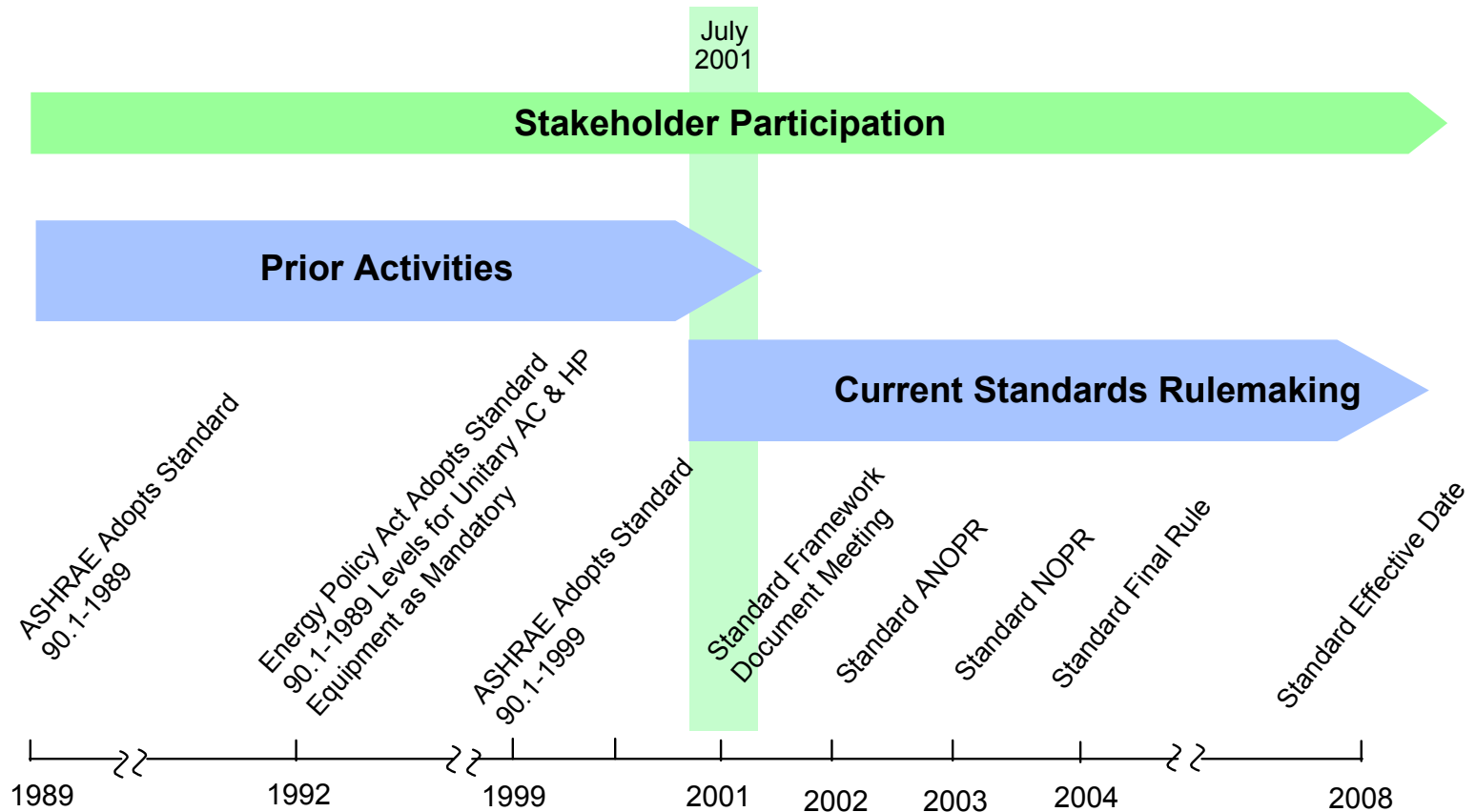
# Rulemaking Status

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- FY 2000 - Assigned a high priority
- January 12, 2001 - Federal Register notice announced DOE would evaluate whether standards higher than ASHRAE/IESNA 90.1 are justified
- May 2001 - National Energy Policy (NEP) report recommended support for the appliance standards program for covered products, setting higher standards where technologically feasible and economically justified



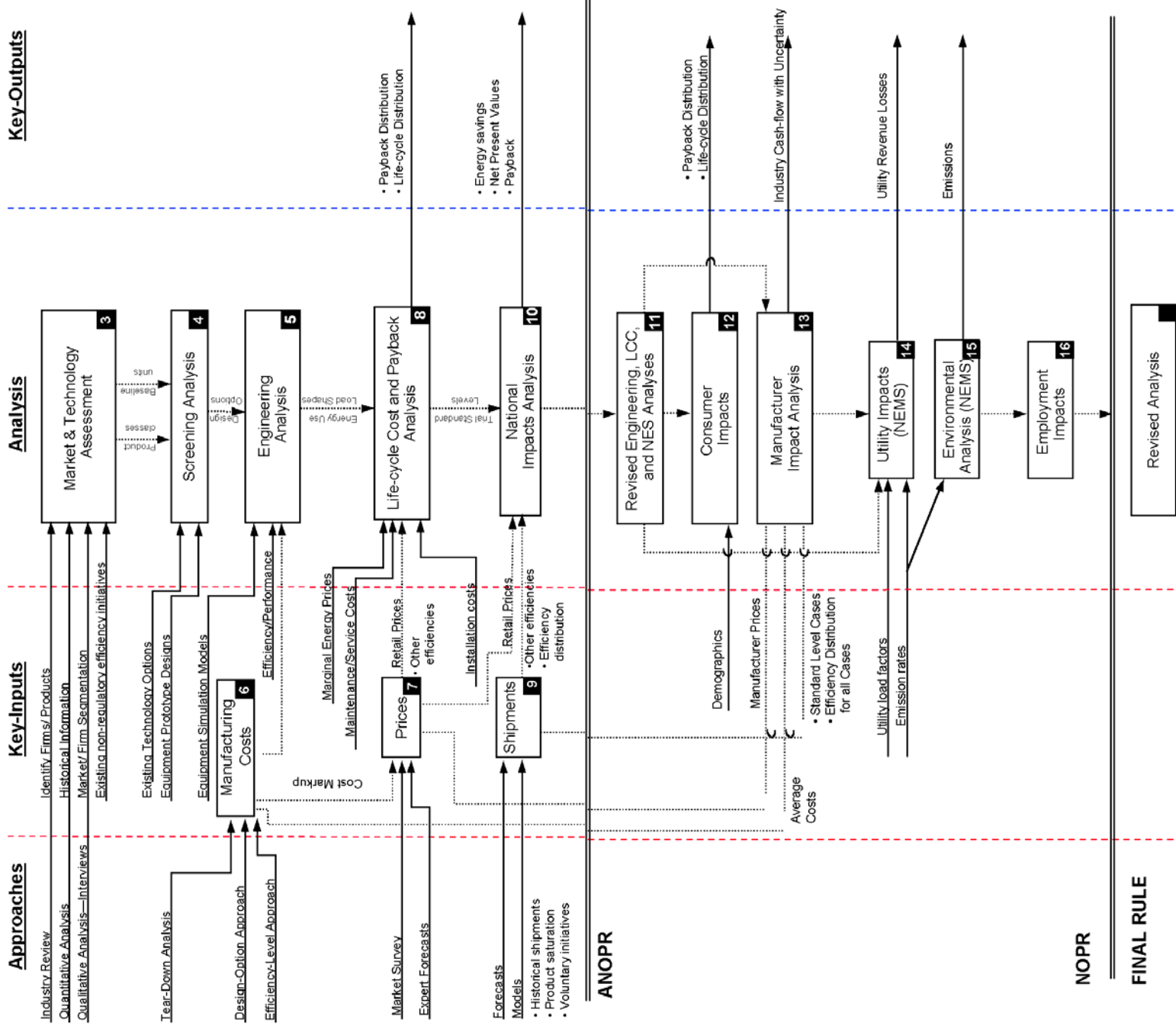
# Standards Setting Process Timeline



**Figure 1. Principal procedural steps in the commercial unitary air-conditioner and heat pump standards setting process**

# Analytical Framework

## Commercial Unitary A/C and HP

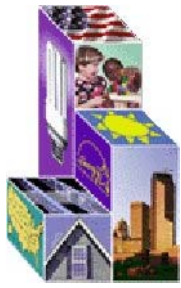




# Discussion Topics

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- Market and Technology Assessment
  - Product Classes
  - Baseline
- Screening Analysis
- Engineering Analysis
  - Equipment Efficiency and Cost Analysis
  - Building Energy Use and Electric Load Shape Characterization

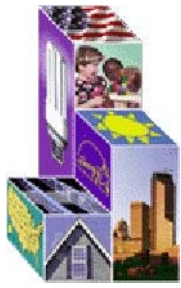


# Discussion Topics (Cont'd)

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- Other Analyses
  - Life-Cycle Cost Analysis
  - Consumer Sub-group Analysis
  - National Energy Saving and Net Present Value Analysis
  - Manufacturer Impact Analysis
  - Employment Impact Analysis
  - Utility Impact Analysis
  - Environmental Analysis





# Next Steps

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- Workshop comments (due 10/12/01)
- Data collection
- Determine whether to adopt ASHRAE/IESNA 90.1 levels or initiate a standards rulemaking
  - Possible rulemaking schedule
    - ANOPR (01/03)
    - NOPR (01/04)
    - Final Rule (08/04)